

b.) Remarks

Claims 1-3 and 5-15 have been amended in order to recite the present invention with the specificity required by statute. Additionally, claims 4 and 16-26 have been cancelled in order to reduce the issues. The subject matter of the amendment is found in the specification as filed, e.g., in original claim 4, and at page 10, lines 7-15, page 13, line 20 and from page 7, line 17 to page 18, line 2. Accordingly, no new matter has been added.

Initially, claims 1-5 and 7-13 are objected to for the reasons noted at page 3 of the Office Action. In response, these claims have all been above amended in conformity with the Examiner's kind suggestions. Accordingly, this rejection is overcome.

Claims 1-15 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the present invention. In response, "energy non-production" has been rewritten to specify that the number of protons discharged per electron is zero as suggested by the Examiner. Additionally, the contemplated "stringent conditions" are now explicitly recited and claim 1, line 2 has been amended as requested. Accordingly, this rejection is overcome as well.

Claims 1-15 are rejected under 35 U.S.C. §112, first paragraph, as containing subject matter which was not adequately described in the specification and claims 1-15 are rejected under 35 U.S.C. §112, first paragraph, as failing to be supported by an enabling disclosure. In response, all pending claims now specify that the DNA is of a specified SEQ ID NO, or hybridizes under the noted conditions to a complementary

sequence of the same in conformity with USPTO Guidelines for Examination under 35 U.S.C. §112. Accordingly, this rejection is also overcome.

Claims 5 and 7 are rejected under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification. In response, Applicants enclose herewith, a suitable Deposit Declaration averring compliance with the terms of the Budapest Treaty for the noted transformant. Accordingly, this rejection too is overcome.

Lastly, claims 1-15 are rejected under 35 U.S.C. §103(a) by Bott (*J. Biotechnol* (2003) 129-53) in view of Nakagawa (U.S. Publication No. 2002/0197605). In support of the rejection, the Examiner states Bott

describes that respiratory chain enzymes involved in the oxidative phosphorylation in the aerobic respiration of *Corynebacterium glutamicum* are useful in amino-acid production and one such enzyme is NADH dehydrogenase.

Nakagawa is cited as disclosing SEQ ID NO:1 which is identical to Applicants' SEQ ID NO:3. Therefore, the Examiner contends it would have been obvious to express Nakagawa's SEQ ID NO:1 in *E. coli* to produce amino acids.

This rejection is respectfully traversed. Prior to setting forth their bases of traversal, however, Applicants would like to briefly discuss the salient features of the present invention and the prior art.

At page 129 Bott describes that change of the efficiency of oxidative phosphorylation caused by qualitative changes of the respiratory chain was found to strongly affect amino acid production.

Changes of the efficiency of oxidative phosphorylation caused by qualitative changes of the respiratory chain, or by a defective F₁F₀-ATP synthase were found to have strong effects on metabolism and amino acid production. Therefore, the system of oxidative phosphorylation represents an attractive target for improving amino acid productivity of *C. glutamicum* by metabolic engineering. (Emphasis added.)

However, Bott does not disclose or suggest what the “qualitative changes of the respiratory chain” are. Moreover, Bott does not disclose or suggest how one of ordinary skill can “qualitatively change” the respiratory chain to improve amino acid production.

In that regard, Nakai (U.S. 2002/0160461), of record herein, teaches obtaining improved amino acid production by deleting *ndh* gene -- which encodes energy non-production NADH dehydrogenase (see Table 2 at page 7). Therefore, the prior art explicitly teaches away from the present invention and any *prima facie* case of obviousness is rebutted on the record.

Accordingly, irrespective of Nakagawa, one of ordinary skill in the art would not introduce into microorganisms DNA encoding Applicants’ NADH dehydrogenase to improve a process for amino acid production.

In view of the above amendments and remarks, Applicants submit that all of the Examiner's concerns are now overcome and the claims are now in allowable condition. Accordingly, reconsideration and allowance of this application is earnestly solicited.

Claims 1-3 and 5-15 remain presented for continued prosecution.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,

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